

Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 01997-274002	Application No. 09/397,432
	Applicant Moungi G. Bawendi et al.		
	Filing Date September 17, 1999	Group Art Unit 1627	

U.S. Patent Documents							
Examiner Initial	Desig. ID	Patent Number	Issue Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	3,996,345	12/07/1976	Ullman et al.	424	12	
	AB	4,637,988	01/20/1987	Hinshaw et al.	436	546	
	AC	4,777,128	10/11/1988	Lippa	435	5	
	AD	5,262,357	11/16/1993	Alivisatos et al.	437	233	
	AE	5,293,050	03/08/1994	Chapple-Sokol et al.	257	17	
	AF	5,354,707	10/11/1994	Chapple-Sokol et al.	437	106	
	AG	5,395,791	03/07/1995	Cheng et al.	437	105	
	AH	5,422,489	06/06/1995	Bhargava	250	488.1	
	AI	5,492,080	02/20/1996	Ohkawa et al.	117	108	
	AJ	5,499,260	03/12/1996	Takahashi et al.	372	46	
	AK	5,515,393	05/07/1996	Okuyama et al.	372	45	
	AL	5,525,377	06/11/1996	Gallagher et al.	427	512	
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	AN	5,541,948	07/30/1996	Krupke et al.	372	41	
	AO	5,585,640	12/17/1996	Huston et al.	250	483.1	
	AP	5,674,698	10/07/1997	Zarling et al.	435	7.92	
	AQ	5,736,330	04/07/1998	Fulton	435	6	
	AR	5,747,180	05/05/1998	Miller et al.	428	601	
	AS	5,985,353	11/16/1999	Lawton et al.	427	2.13	
	AT	6,114,038	09/05/2000	Castro et al.	428	402.24	

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							Yes	No
	AU	WO 98/19963	05/14/1998	PCT				
	AV	WO 98/33070	07/30/1998	PCT				
	AW	WO 99/19515	04/22/1999	PCT				
	AX	WO 00/27365	05/18/2000	PCT				

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	BA	WO 00/27436	05/18/2000	PCT				
	BB	WO 00/28088	05/18/2000	PCT				
	BC	WO 00/28089	05/18/2000	PCT				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	BD	Alivisatos et al., "Semiconductor Clusters, Nanocrystals, and Quantum Dots," <i>Science</i> , 271:933-937, February 16, 1996
	BE	Alivisatos et al., "Organization of 'nanocrystal molecules' using DNA," <i>Nature</i> , 382:609-611, August 15, 1996
	BF	Bawendi et al., "Luminescence properties of CdSe quantum crystallites: resonance between interior and surface localized states," <i>J. Chem. Phys.</i> , 96(2):946-954, January 15, 1992
	BG	Beverloo et al., "Preparation and Microscopic Visualization of Multicolor Luminescent Immunophosphors," <i>Cytometry</i> , 13:561-570, 1992
	BH	Bruchez et al., "Semiconductor nanocrystals as fluorescent probes for biology," <i>Cytometry</i> , Supplement 9, p. 26, March, 1998
	BI	Bruchez et al., "Luminescent Semiconductor Nanocrystals: Intermittent Behavior and Use as Fluorescent Biological Probes," Doctoral Dissertation, University of California, July 13, 1998
	BJ	Colvin et al., "Light-emitting diodes made from cadmium selenide nanocrystals and a semiconducting polymer" <i>Nature</i> , 370(6488):354-357, August 4, 1994
	BK	Cook, "Scintillation proximity assay: a versatile high-throughput screening technology," <i>Drug Discovery Today</i> , 1:287-294, July 1996
	BL	Correa-Duarte et al., "Stabilization of CdS semiconductor nanoparticles against photodegradation by silica coating procedure," <i>Chem. Phys. Lett.</i> , 286:497-501, April 17, 1998
	BM	Dabbousi et al., "Electroluminescence from CdSe quantum-dot/polymer composites" <i>Appl. Phys. Lett.</i> , 66(11):1316-1318, March 13, 1995
	BN	Fox et al., "Fluorescence and Redox Activity of Probes Anchored through an Aminotriethiol to Polycrystalline Gold" <i>Langmuir</i> , 14:816-820, 1998
	BO	Gan et al., "Enhanced Photoluminescence and Characterization of Mn-Doped ZnS Nanocrystallites Synthesized in Microemulsion" <i>Langmuir</i> , 13:6427-6431, 1997
	BP	Gao et al., "Strongly Photoluminescent CdTe Nanocrystals by Proper Surface Modification," <i>J. Phys. Chem.</i> , 102:8360-8363, 1998
	BQ	Guha et al., "Hybrid organic-inorganic semiconductor-based light-emitting diodes" <i>J. Appl. Phys.</i> , 82(8):4126-4128, October 15, 1997
	BR	Jarvis et al., "Solution Synthesis and Photoluminescence Studies of Small Crystallites of Cadmium Telluride," <i>Mat. Res. Soc. Symp. Proc.</i> , 272:229-234, 1992
	BS	Kagan et al., "Electronic Energy Transfer in CdSe Quantum Dot Solids," <i>Physical Review Letters</i> , 76(9):1517-1520, 1996
	BT	Kagan et al., "Long-range resonance transfer of electronic excitations in close-packed CdSe quantum-dot solids," <i>Physical Review B</i> , 54(12):8633-8643, September 15, 1996-II

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	CA	Lawless et al., "Bifunctional Capping of CdS Nanoparticles and Bridging to TiO ₂ ," <i>J. Phys. Chem.</i> , 99:10329-10335, 1995
	CB	Lee et al., "Surface Derivatization of Nanocrystalline CdSe Semiconductors," <i>Mat. Res. Soc. Symp. Proc.</i> , 452:323-328, 1997
	CC	Liz-Marzan et al., "Synthesis of Nanosized Gold-Silica Core-Shell Particles" <i>Langmuir</i> , 12(18):4329-4335, 1996
	CD	Mahtab et al., "Protein-Sized Quantum Dot Luminescence Can Distinguish between 'Straight', 'Bent', and 'Kinked' Oligonucleotides", <i>J. Am. Chem. Soc.</i> , 117:9099-9100, 1995
	CE	Mahtab et al., "Preferential-absorption of a 'kinked' DNA to a newtral curved surface: comparison to and implications for nonspecific DNA-protein interactions," <i>J. Am. Chem. Soc.</i> , 118:7028-7032, 1996
	CF	Mikulec et al., "Synthesis and Characterization of Highly Luminescent (CdSe)ZnS Quantum Dots," <i>Materials Research Society Symposium</i> , 452:359-364, 1997
	CG	Müllenborn et al., "Characterization of Solution-Synthesized CdTe and HgTe," <i>Applied Physics</i> , 56:317-321, 1993
	CH	Murphy et al., "Quantum dots as inorganic DNA-binding proteins," <i>Mat. Res. Soc. Symp.</i> , 452:597-600, 1997
	CI	Pehnt et al., "Nanoparticle Precursor Route to Low-Temperature Spray Deposition of CdTe Thin Films," <i>Appl. Phys. Lett.</i> , 67(15):2176-2178, 1995
	CJ	Peng et al., "Epitaxial Growth of Highly Luminescent CdSe/CdS Core/Shell Nanocrystals with Photostability and Electronic Accessibility," <i>J. Am. Chem. Soc.</i> , 119:7019-7029, 1997
	CK	Peng et al., "Synthesis and Isolation of a Homodimer of Cadmium Selenide Nanocrystals," <i>Angewandte Chemie</i> , 36:145-147, 1997
	CL	Rajh et al., "Synthesis and Characterization of Surface-Modified Colloidal CdTe Quantum Dots" <i>J. Phys. Chem.</i> , 97:11999-12003, Nov. 1993
	CM	Rogach et al., "Synthesis and characterization of Thiol-Stabilized CdTe Nanocrystals" <i>Ber. Bunsenges. Phys. Chem.</i> , 100(11):1772-2778, 1996
	CN	Schröck et al., "Multicolor Spectral Karyotyping of Human Chromosomes," <i>Science</i> , 273:494-497, July 26, 1996
	CO	Spanhel et al., "Photochemistry of Colloidal Semiconductors. Surface Modification and Stability of Strong Luminescing CdS Particles" <i>J. Am. Chem. Soc.</i> , 109(19):5649-5655, 1987
	CP	Steigerwald et al., "Surface Derivatization and Isolation of Semiconductor Cluster Molecules," <i>J. Am. Chem. Soc.</i> , 110:3046-3050, 1988
	CQ	Zhang et al., "Novel Flow Cytometry Compensation Standards: Internally Stained Fluorescent Microspheres With Matched Emission Spectra and Long-Term Stability," <i>Cytometry</i> , 33:244-248, October 1, 1998

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	AC	5,789,162	08/04/1998	Dower et al.	435	6	
	AD	5,565,324	10/15/1996	Still et al.	435	6	
	AE	5,625,456	04/29/1997	Lawandy	356	376	
	AF	5,721,099	02/24/1998	Still et al.	435	6	
	AG	5,770,299	06/23/1998	Dannenhauer et al.	428	195	
	AH	5,751,018	05/12/1998	Alivisatos et al.	257	64	

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	AJ	WO 98/04740	02/05/1998	PCT				
	AK	WO 98/36376	08/20/1998	PCT				
	AL	WO 98/46372	10/22/1998	PCT				

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	AM	Kortan et al., "Nucleation and Growth of CdSe on ZnS Quantum Crystallite Seeds, and Vice Versa, In Inverse Micelle Media" <i>J. Am. Chem. Soc.</i> 112:1327-1332, 1990
	AN	Coffer et al., "Characterization of quantum-confined CdS Nanocrystallites stabilized by deoxyribonucleic acid (DNA)" <i>Nanotechnology</i> 3:69-76, 1992
	AO	Murray et al., "Synthesis and Characterization of Nearly Monodisperse CdE (E=S, Se, Te) Semiconductor Nanocrystallites" <i>J. Am. Chem. Soc.</i> 115(19):8706-8715, 1993
	AP	Whitesell et al., "Directionally Aligned Helical Peptides on Surfaces" <i>Science</i> 261:73-76, July 1993
	AQ	Moran et al., "Radio Frequency Tag Encoded Combinatorial Library Method for the Discovery of Tripeptide-Substituted Cinnamic Acid Inhibitors of the Protein Tyrosine Phosphatase PTP1B" <i>J. Am. Chem. Soc.</i> 117:10787-10788, 1995
	AR	Nicolaou et al., "Radiofrequency Encoded Combinatorial Chemistry" <i>Ingew. Chem. Int. Ed. Engl.</i> 34(20):2289-2291, 1995
	AS	Alivisatos, "Perspectives on the Physical Chemistry of Semiconductor Nanocrystals" <i>J. Phys. chem.</i> 1996(100):13226-13239, 1996

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	BA	Danek et al., "Synthesis of Luminescent Thin-Film CdSe/ZnSe Quantum Dot Composites Using CdSe Quantum Dots Passivated with an Overlay of ZnSe" <i>Chem. Mater.</i> 8(1):173-180, 1996
	BB	Matsumoto et al., "Preparation of Monodisperse CdS Nanocrystals by Size Selective Photocorrosion" <i>J. Phys. Chem.</i> 100(32):13781-13785, 1996
	BC	Hines et al., "Synthesis and Characterization of Strongly Luminescing ZnS-Capped CdSe Nanocrystals" <i>J. Phys. Chem.</i> 100:468-471, January 1996
	BD	McGall et al., "Light-directed synthesis of high-density oligonucleotide arrays using semiconductor photoresists" <i>Proc. Natl. Acad. Sci. USA</i> 93:13555-13560, November 1996
	BE	Chee et al., "Accessing Genetic Information with High-Density DNA Arrays" <i>Science</i> 274(5287):610-614, October 25, 1996
	BF	Empedocles et al., "Photoluminescence Spectroscopy of Single CdSe Nanocrystallite Quantum Dots" <i>Phys. Rev. Lett.</i> 77(18):3873-3876, October 1996
	BG	Nirmal et al., "Fluorescence Intermittency in single Cadmium Selenide Nanocrystals" <i>Nature</i> 383:802-804, October 1996
	BH	Egner et al., "Tagging in combinatorial chemistry: the use of coloured and fluorescent beads" <i>Chem. Commun.</i> , 735-736, 1997
	BI	Empedocles et al., "Quantum-Confined Stark Effect in Single CdSe Nanocrystallite Quantum Dots" <i>Science</i> 278:2114-2117, December 1997
	BJ	Fodor, "Techwire" <i>Science</i> 277(5324):393-395, July 18, 1997
	BK	Kuno et al., "The band edge luminescence of surface modified CdSe nanocrystallites: Probing the luminescing state" <i>J. Chem. Phys.</i> 106(23):9869-9882, June 1997
	BL	Dabbousi, et al., "(CdSe)ZnS core-shell quantum dots: synthesis and characterization of a size series of highly luminescent nanocrystallites" <i>J. of Phys. Chem. B</i> 101(46):9463-9475, November 13, 1997
	BM	Michael et al., "Randomly Ordered Addressable High-Density Optical Sensor Arrays" <i>Analyt. Chem.</i> 70(7):1242-1248, April 1998
	BN	Winzler et al., "Direct Allelic Variation Scanning of the Yeast Genome" <i>Science</i> 281:1194-1197, August 1998
	BO	Wang et al., "Large-Scale Identification, Mapping, and Genotyping of Single-Nucleotide Polymorphisms in the Human Genome" <i>Science</i> 280:1077-1082, May 1998
	BP	Mikulec et al., "Fluorescent semiconductor nanocrystallites derivatized with biomolecules" <i>Amer. Chem. Soc. Nat'l Meeting</i> , Boston, MA, August 24, 1998
	BQ	Service, "Semiconductor Beacons Light Up Cell Structures" <i>Science</i> 281:19930-1931, September 25, 1998
	BR	Jacoby, "Quantum dots meet biomolecules" <i>C&E News</i> :8, September 28, 1998
	BS	Bruchez et al., "Semiconductor Nanocrystals as Fluorescent Biological Labels" <i>Science</i> 281:2013-2016, September 1998
	BT	Chan et al., "Quantum Dot Bioconjugates for Ultrasensitive Nonisotopic Detection" <i>Science</i> 281:2016-2018, September 1998
	BU	Wade, "In the Hunt for Useful Genes, a Lot Depends on "Snips"" :C1, C5 August 11, 1998
	BV	Lett, "Color-Coding Quantum Dots Debut with Promising Careers In Clinical Diagnostics Field" :1-2, September 25, 1998

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	CA	Baldwin et al., "Synthesis of a Small Molecule Combinatorial Library Encoded with molecular Tags" <i>J. Am. Chem. Soc.</i> 117:5588-89, 1995
	CB	Czarnik, "Encoding methods for combinatorial chemistry" <i>Curr Opin Chem Biol.</i> 1(1):60-6, 1997
	CC	Plunkett et al., "Combinatorial chemistry and new drugs" <i>Sci Am</i> 276(4):68-73, 1997
	CD	Bawendi et al., Poster Presentation Entitled: "Fluorescent Semiconductor Nanocrystallites Derivatized With Biomolecules," Presented at the 216 th National Meeting of the American Chemical Society, August 23-27, 1998

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	AA	6,309,701 B1	10/2001	Barbera-Guillem			
	AB	6,355,432 B1	3/2002	Fodor et al.			

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	AB	5,625,456	04-1997	Lawandy			
	AC	5,990,479	11/23/99	Weiss et al.			
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	AR	Bawendi et al., Poster, Entitled "Fluorescent Semiconductor Nanocrystallites Derivatized With Biomolecules," Presented at the 216 th Meeting of the American Chemical Society Aug. 23-27, 1998.
	AS	Sambrook et al., Molecular Cloning: A Laboratory Manual; Second Edition, Cold Spring Harbor Press, page 12.14
	AT	

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